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### 1 [Section 03: tools: Simplifying video editing using metadata](#)

Juan Casares, A. Chris Long, Brad A. Myers, Rishi Bhatnagar, Scott M. Stevens, Laura Dabbish, Dan Yocum, Albert Corbett

 June 2002 **Proceedings of the conference on Designing interactive systems: processes, practices, methods, and techniques**

Full text available: pdf(2.91 MB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Digital video is becoming increasingly ubiquitous. However, editing video remains difficult for several reasons: it is a time-based medium, it has dual tracks of audio and video, and current tools force users to work at the smallest level of detail. Based on interviews with professional video editors, we developed a video editor, called Silver, that uses metadata to make digital video editing more accessible to novices. To help users visualize video, Silver provides multiple views with different ...

**Keywords:** Informedia., Silver, digital video editing, metadata, multimedia authoring

### 2 [Digital images: Entropy metrics used for video summarization](#)

Z. Cerneková, C. Nikou, I. Pitas

 April 2002 **Proceedings of the 18th spring conference on Computer graphics**

Full text available: pdf(859.24 KB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

New methods for detecting shot boundaries in video sequences and for extracting key frames using metrics based on information theory are proposed. The method for shot cut detection relies on the mutual information and the joint entropy between the frames. It can detect cuts, fade-ins and fade-outs. The detection technique was tested on TV video sequences having different types of shots and containing significant object and camera motion inside the shots. It is demonstrated that the method detect ...

**Keywords:** detection accuracy, entropy, key frame extraction, mutual information, shot boundary detection, video analysis, video segmentation

### 3 [Multimedia authoring: AVE: automated home video editing](#)

Xian-Sheng HUA, Lie LU, Hong-Jiang ZHANG

 November 2003 **Proceedings of the eleventh ACM international conference on Multimedia**



Full text available:  pdf(384.96 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


In this paper, we present a system that automates home video editing. This system automatically extracts a set of highlight segments from a set of raw home videos and aligns them with user supplied incidental music based on the content of the video and incidental music. We developed an approach for extracting temporal structure and determining the importance of a video segment in order to facilitate the selection of highlight segments. Additionally we extract temporal structure, beats and tempos ...

**Keywords:** audio segmentation, music analysis, optimization, video content analysis, video editing, video segmentation, video skimming

#### 4 Video Processing: Multimedia edges: finding hierarchy in all dimensions

Malcolm Slaney, Dulce Ponceleon, James Kaufman

October 2001 **Proceedings of the ninth ACM international conference on Multimedia**

Full text available:  pdf(6.41 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


This paper describes a new unified representation for the information in a video. We reduce the dimensionality of the signal with either a singular-value decomposition (on the semantic and image data) or mel-frequency cepstral coefficients (on the audio data) and then concatenate the vectors to form a multi-dimensional representation of the video. Using scale-space techniques we find large jumps in the video's path, which we call edges. We use these techniques to analyze the temporal properties ...

**Keywords:** audio, automatic segmentation, color space, hierarchy, images, latent semantic indexing, multimedia, video, scale space, semantic space, singular-value decomposition, temporal properties

#### 5 A multi-view intelligent editor for digital video libraries

Brad A. Myers, Juan P. Casares, Scott Stevens, Laura Dabbish, Dan Yocum, Albert Corbett

January 2001 **Proceedings of the first ACM/IEEE-CS joint conference on Digital libraries**

Full text available:  pdf(7.73 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Silver is an authoring tool that aims to allow novice users to edit digital video. The goal is to make editing of digital video as easy as text editing. Silver provides multiple coordinated views, including project, source, outline, subject, storyboard, textual transcript and timeline views. Selections and edits in any view are synchronized with all other views. A variety of recognition algorithms are applied to the video and audio content and then are used to aid in the editing tasks. The ...

**Keywords:** digital video editing, informedia, multimedia authoring, silver, video library

#### 6 Content-based retrieval: VideoQA: question answering on news video

Hui Yang, Lekha Chaisorn, Yunlong Zhao, Shi-Yong Neo, Tat-Seng Chua

November 2003 **Proceedings of the eleventh ACM international conference on Multimedia**

Full text available:  pdf(592.26 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

When querying a news video archive, the users are interested in retrieving precise answers in the form of a summary that best answers the query. However, current video retrieval systems, including the search engines on the web, are designed to retrieve documents instead of precise answers. This research explores the use of question answering (QA)



techniques to support personalized news video retrieval. Users interact with our system, VideoQA, using short natural language questions with implicit ...

**Keywords:** transcript error correction, video question answering, video retrieval, video summarization

7 Posters: Fuzzy color quantization and its application to scene change detection

Fu-lai Chung, Benny Y. M. Fung

November 2003 **Proceedings of the 5th ACM SIGMM international workshop on Multimedia information retrieval**

Full text available:  pdf(447.67 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

It is both impractical and unnecessary to use true color, i.e., 24-bit colors, for most multimedia processing tasks since the computational complexity is extremely high and adjacent colors in the color model do not contribute much to visual and computational differences. Color quantization can reduce these complexities by using less number of bits to represent the 24-bit true color space. In this paper, we investigate the fuzzy color quantization technique based on the fact that the colors locat ...

**Keywords:** color histogram, color quantization, scene change detection, video shot

8 Seeing the whole in parts: text summarization for web browsing on handheld devices

Orkut Buyukkokten, Hector Garcia-Molina, Andreas Paepcke

April 2001 **Proceedings of the tenth international conference on World Wide Web**

Full text available:  pdf(1.48 MB) Additional Information: [full citation](#), [references](#), [citing](#), [index terms](#)

**Keywords:** PDA, WAP, handheld computers, mobile computing, personal digital assistant, summarization, ubiquitous computing, wireless computing

9 Efficient web browsing on handheld devices using page and form summarization

January 2002 **ACM Transactions on Information Systems (TOIS)**, Volume 20 Issue 1

Full text available:  pdf(4.47 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

We present a design and implementation for displaying and manipulating HTML pages on small handheld devices such as personal digital assistants (PDAs), or cellular phones. We introduce methods for summarizing parts of Web pages and HTML forms. Each Web page is broken into text units that can each be hidden, partially displayed, made fully visible, or summarized. A variety of methods are introduced that summarize the text units. In addition, HTML forms are also summarized by displaying just the t ...

**Keywords:** PDA, Personal digital assistant, WAP, WML, forms, handheld computers, mobile computing, summarization, ubiquitous computing, wireless computing

10 Determining computable scenes in films and their structures using audio-visual memory models

Hari Sundaram, Shih-Fu Chang

October 2000 **Proceedings of the eighth ACM international conference on Multimedia**

Full text available:  pdf(924.83 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citing](#), [index terms](#)



In this paper we present novel algorithms for computing scenes and within-scene structures in films. We begin by mapping insights from film-making rules and experimental results from the psychology of audition into a computational scene model. We define a computable scene to be a chunk of audio-visual data that exhibits long-term consistency with regard to three properties: (a) chromaticity (b) lighting (c) ambient sound. Central to the computational model is the notion of a causal, finite-me ...

**Keywords:** computable scenes, films, memory models, periodic analysis transform, scene detection, shot-level structure

#### 11 Associating video with related documents

Reiko Hamada, Ichiro Ide, Shuichi Sakai, Hidehiko Tanaka

October 1999 **Proceedings of the seventh ACM international conference on Multimedia (Part 2)**

Full text available:  [pdf\(647.34 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

#### 12 Associating cooking video with related textbook

Reiko Hamada, Ichiro Ide, Shuichi Sakai

November 2000 **Proceedings of the 2000 ACM workshops on Multimedia**


Full text available:  [pdf\(1.03 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We have been handling video with supplementary documents, such as cooking programs, and are working on integration of such media. Through the integration, many applications will become possible, for example, reconstruction of multimedia data that supplement the information of each medium, construction of interactive database, or kitchen automation. Until now, we have proposed an integration system that perform integrative analysis of image, audio and text and associate each other. In this pap ...

#### 13 A video retrieval and sequencing system

Tat-Seng Chua, Li-Qun Ruan

October 1995 **ACM Transactions on Information Systems (TOIS)**, Volume 13 Issue 4

Full text available:  [pdf\(3.20 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Video is an effective medium for capturing the events in the real world around us, and a vast amount of video materials exists, covering a wide range of applications. However, widespread use of video in computer applications is often impeded by the lack of effective tools to manage video information systematically. This article discusses the design and implementation of a frame-based video retrieval and sequencing system (VRSS). The system is designed to support the entire process of video ...

**Keywords:** cinematic rules, frame-based modeling, multimedia, video retrieval, virtual editing

#### 14 A speech-first model for repair detection and correction

Christine Nakatani, Julia Hirschberg

June 1993 **Proceedings of the 31st conference on Association for Computational Linguistics**

Full text available:  [pdf\(912.28 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)  
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Interpreting fully natural speech is an important goal for spoken language understanding



systems. However, while corpus studies have shown that about 10% of spontaneous utterances contain self-corrections, or REPAIRS, little is known about the extent to which cues in the speech signal may facilitate repair processing. We identify several cues based on acoustic and prosodic analysis of repairs in a corpus of spontaneous speech, and propose methods for exploiting these cues to detect and correct r ...

**15 Session 6: student best paper contest: A utility framework for the automatic generation of audio-visual skims**

Hari Sundaram, Lexing Xie, Shih-Fu Chang

December 2002 **Proceedings of the tenth ACM international conference on Multimedia**

Full text available:  [pdf\(487.92 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

In this paper, we present a novel algorithm for generating audio-visual skims from computable scenes. Skims are useful for browsing digital libraries, and for on-demand summaries in set-top boxes. A computable scene is a chunk of data that exhibits consistencies with respect to chromaticity, lighting and sound. There are three key aspects to our approach: (a) visual complexity and grammar, (b) robust audio segmentation and (c) an utility model for skim generation. We define a measure of visual c ...

**16 Zodiac: a history-based interactive video authoring system**

Tzi-cker Chiueh, Tulika Mitra, Anindya Neogi, Chuan-Kai Yang

September 1998 **Proceedings of the sixth ACM international conference on Multimedia**

Full text available:  [pdf\(1.10 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**17 Video Retrieval and Browsing: Learning video browsing behavior and its application in the generation of video previews**

Tanveer Syeda-Mahmood, Dulce Ponceleon

October 2001 **Proceedings of the ninth ACM international conference on Multimedia**

Full text available:  [pdf\(1.86 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

With more and more streaming media servers becoming commonplace, streaming video has now become a popular medium of instruction, advertisement, and entertainment. With such prevalence comes a new challenge to the servers: Can they track browsing behavior of users to determine what interest users? Learning this information is potentially valuable not only for improved customer tracking and context-sensitive e-commerce, but also in the generation of fast previews of videos for easy pre-downloads. ...

**Keywords:** audio, browsing behavior, interesting content, learning, topics, video previews

**18 Key to effective video retrieval: effective cataloging and browsing**

Dulce Ponceleon, Savitha Srinivasan, Arnon Amir, Dragutin Petkovic, Dan Diklic

September 1998 **Proceedings of the sixth ACM international conference on Multimedia**

Full text available:  [pdf\(1.03 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** cataloger, digital library creation, multiview storyboard, speech recognition, video annotation, video search and browse, video segmentation

**19 Memory: part III. Reasoning and inference: The commonsense algorithm as a basis for**

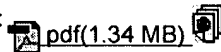


## computer models of human memory, inference, belief and contextual language comprehension

Chuck Rieger

June 1975 **Proceedings of the 1975 workshop on Theoretical issues in natural language processing**

Full text available:



Additional Information: [full citation](#), [abstract](#), [references](#)

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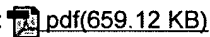
The notion of a commonsense algorithm is presented as a basic data structure for modeling human cognition. This data structure unifies many current ideas about human memory and information processing. The structure is defined by specifying a set of proposed cognitive primitive links which, when used to build up large structures of actions, states, statechanges and tendencies, provide an adequate formalism for expressing human plans and activities, as well as general mechanisms and computer algor ...

## 20 Organization and retrieval of continuous media

Yasuo Ariki

November 2000 **Proceedings of the 2000 ACM workshops on Multimedia**

Full text available:



Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Because of the media digitization, a large amount of information such as speech, audio and video data is produced everyday. In order to retrieve data quickly and precisely from these databases, multimedia technologies for organizing and retrieving of speech, audio and video data are strongly required. In this paper, we overview the multimedia technologies such as organization and retrieval of speech, audio and video data, speaker indexing, audio summarization and cross media retrieval existin ...

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